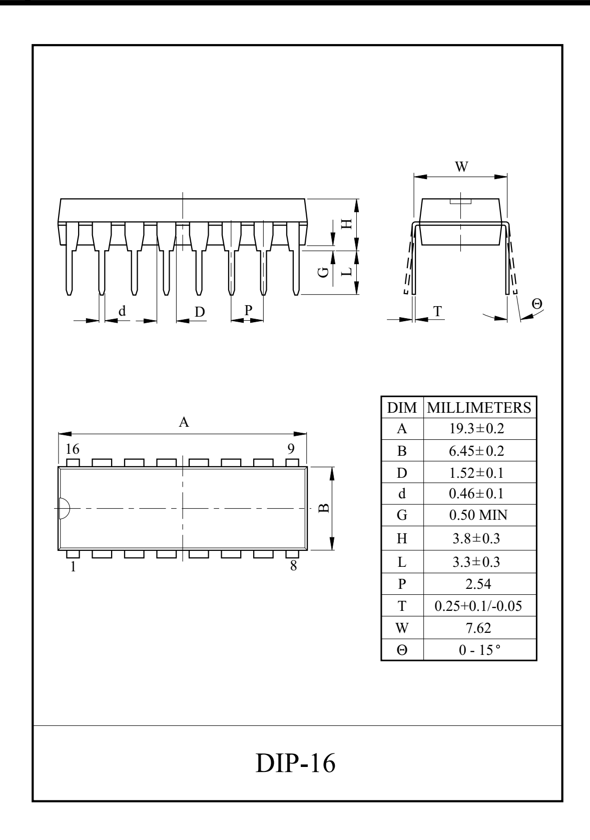


SEMICONDUCTOR
TECHNICAL DATA

KIA6040P
BIPOLAR LINEAR INTEGRATED CIRCUIT

AM/FM IF SYSTEM IC

The KIA6040P is AM/FM IF system IC designed for portable use. As compared with conventional IC, this IC is greatly improved in external parts counts and electrical characteristics, especially tweet and overload distortion.



DIM	MILLIMETERS
A	19.3±0.2
B	6.45±0.2
D	1.52±0.1
d	0.46±0.1
G	0.50 MIN
H	3.8±0.3
L	3.3±0.3
P	2.54
T	0.25+0.1/-0.05
W	7.62
Θ	0 - 15°

DIP-16

FEATURES

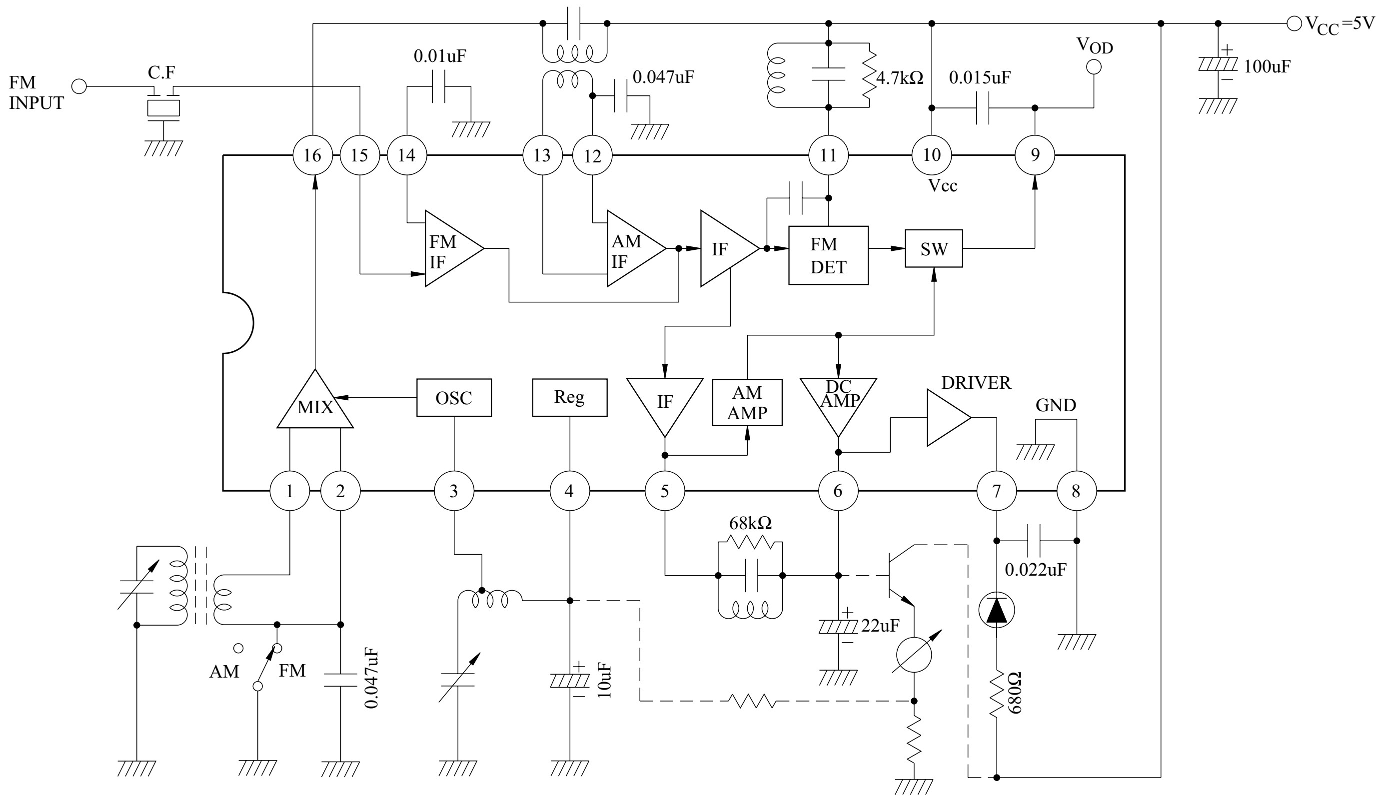
- Low Supply Current, AM:7mA, FM : 10mA(Typ.).
- Few External Parts.
- Excellent Tweet.
- Low Overload Distortion.
- Tuning Indicator LED Driving Capability. : I_{LAMP}=10mA(Typ.)
- Built-in AM/FM Mode Switch.
- Common Output for AM/FM.
- Operating Supply Voltage Range : $V_{CC(opr)}$=3 ~8V(Ta=25℃).

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	8	V
Lamp Current	I_{LAMP}	10	mA
Power Dissipation (Note)	P_D	750	mW
Operating Temperature	T_{opr}	-25 ~75	℃
Storage Temperature	T_{stg}	-55 ~ 150	℃

Note : Derated above Ta=25℃ in the Proportion of 6mW/℃ for KIA6040P.

BLOCK DIAGRAM



Note : The dot line denotes a tuning meter application.

ELECTRICAL CHARACTERISTICS

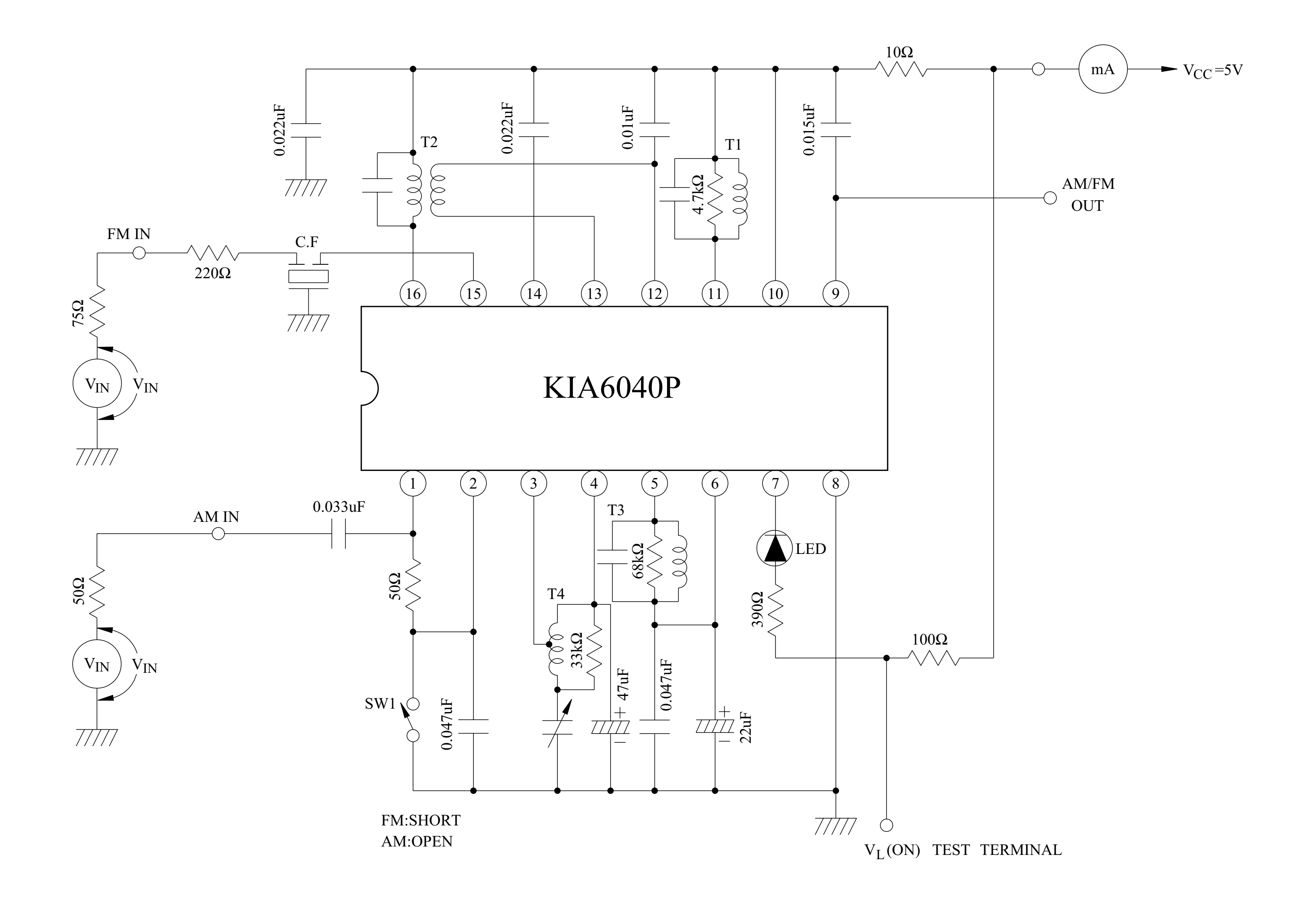
1. DC CHARACTERISTICS (V_{CC}=5V, Terminal voltage at no signal)

PIN NO.	ITEM	SYMBOL	Typ.		UNIT
			AM	FM	
1	(AM MIX IN)	V_1	1.5	0	V
2	(AM MIX BYPASS)	V_2	1.5	0	V
3	(AM OSC)	V_3	2.3	2.3	V
4	(Reg)	V_4	2.3	2.3	V
5	(AM IF OUT)	V_5	1.0	0.9	V
6	(Meter OUT)	V_6	1.0	0.9	V
7	(LED)	V_7	-	-	V
8	(GND)	V_8	0	0	V
9	(DET OUT)	V_{19}	1.4	1.5	V
10	(V_{CC})	V_{10}	5.0	5.0	V
11	(FM DET)	V_{11}	5.0	5.0	V
12	(AM IF BYPASS)	V_{12}	1.5	1.5	V
13	(AM IF IN)	V_{13}	1.5	1.5	V
14	(FM IF BYPASS)	V_{14}	1.5	1.5	V
15	(FM IF IN)	V_{15}	1.5	1.5	V
16	(AM MIX OUT)	V_{16}	5.0	5.0	V

2. AC CHARACTERISTICS
(Ta=25 ℃, Vcc=5V, FM : f=10.7kHz, ⊿f=±22.5kHz dev., fm=400Hz
AM : f=1MHz, Mod=30%, fm=400Hz)

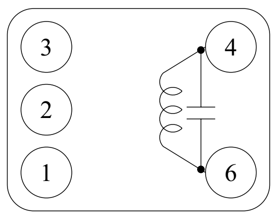
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		$I_{CC}(1)$	1	FM V_{IN}=0	-	10	15	mA
		$I_{CC}(2)$		AM V_{IN}=0	-	7	10	
FM	Input Limiting Voltage	$V_{IN(lim)}$	1	-3dB Limiting	-	40	46	dBμ
	Recovered Output Voltage	V_{OD}	1	V_{IN}=66dBμ	57	85	114	mV_{rms}
	Signal to Noise Ratio	S/N	1	V_{IN}=80dBμ	-	65	-	dBμ
	Total Harmonic Distortion	THD	1	V_{IN}=80dBμ	-	0.05	-	%
	AM Rejection Ratio	AMR	1	V_{IN}=80dBμ	-	38	-	dBμ
	Meter Drive Voltage	V_M	1	V_{IN}=100dBμ	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V_L	1	I_L=1mA	-	46	52	dB
AM	Gain	G_V	1	V_{IN}=26dBμ	20	30	60	mV_{rms}
	Recovered Output Voltage	V_{OD}	1	V_{IN}=60dBμ	65	95	125	mV_{rms}
	Signal to Noise Ratio	S/N	1	V_{IN}=60dBμ	-	47	-	dB
	Total Harmonic Distortion	THD	1	V_{IN}=60dBμ	-	1.0	-	%
	Meter Drive Voltage	V_M	1	V_{IN}=100dBμ	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V_L	1	I_L=1mA	-	32	-	dBμ
	Local OSC Stop Voltage	V_{stop}	1	$R_{DUMP}=\infty$	-	1.5	-	V
Pin ⑨ Output Resistance		R_{09}	-	f=1kHz	-	3.0	-	kΩ

TEST CIRCUIT



COIL DATA (TEST CIRCUIT)

T_1 FM DETECTOR COIL

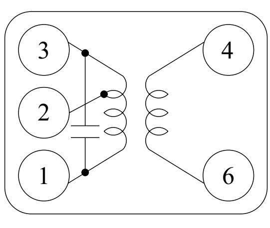


(BOTTOM VIEW)

C_O(pF)	f (MHz)	Q_O	TURNS
4-6		4-6	4-6
47	10.7	150	14

ⓚ : KSC0902
ⓢ : 44M-933A or SIMILAR
WIRE : 0.12mmφUEW

T_2 AM IFT (MIX OUT)

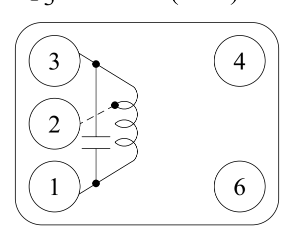


(BOTTOM VIEW)

C_O(pF)	f (MHz)	Q_O	TURNS		
1-3		4-6	1-2	2-3	4-6
180	455	150	90	62	8

ⓚ : KS M308
ⓢ : 48T-423 or SIMILAR
WIRE : 0.07mmφUEW

T_3 AM IFT (DET)

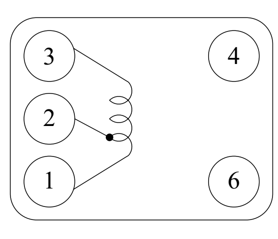


(BOTTOM VIEW)

C_O(pF)	f (MHz)	Q_O	TURNS
1-3		1-3	1-
180	455	110	152

ⓚ : KSAD106
ⓢ : 44M-935C or SIMILAR
WIRE : 0.07mmφUEW

T_4 MW OSC



(BOTTOM VIEW)

f (kHz)	L(μH)	Q_O	TURNS	
	1-3	1-3	1-2	2-3
796	288	120	13	75

ⓚ : KSA0408
ⓢ : 0137-262 or SIMILAR
WIRE : 0.08mmφUEW

NOTE : ⓚ : KWANG SUNG ELECTRIC CO., LTD.
(Tel : 02)716-0034)
ⓢ : SUMIDA ELECTRIC CO., LTD.

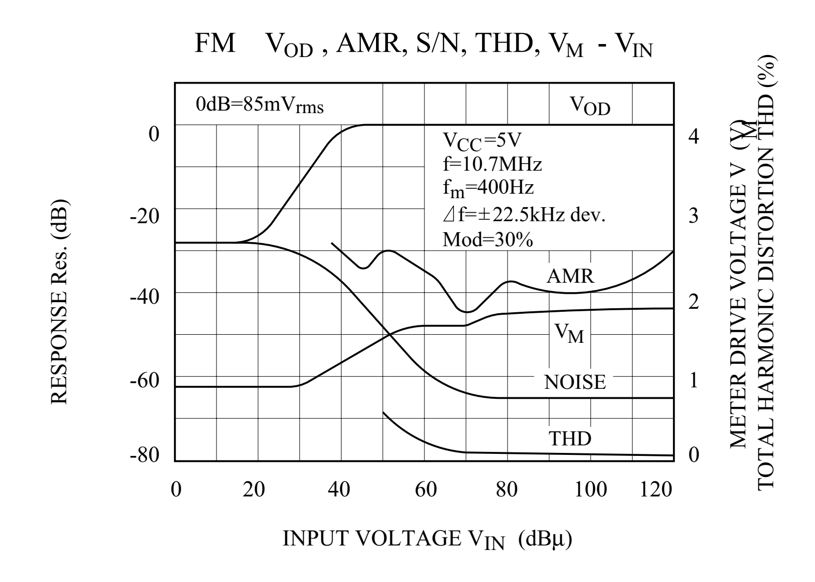
APPLICATION CIRCUIT

22Ω
0.022uF
0.01uF
0.01uF
4.7kΩ
1000pF
VCC
AM/FM OUT
FRONT END
C.F
16 15 14 13 12 11 10 9

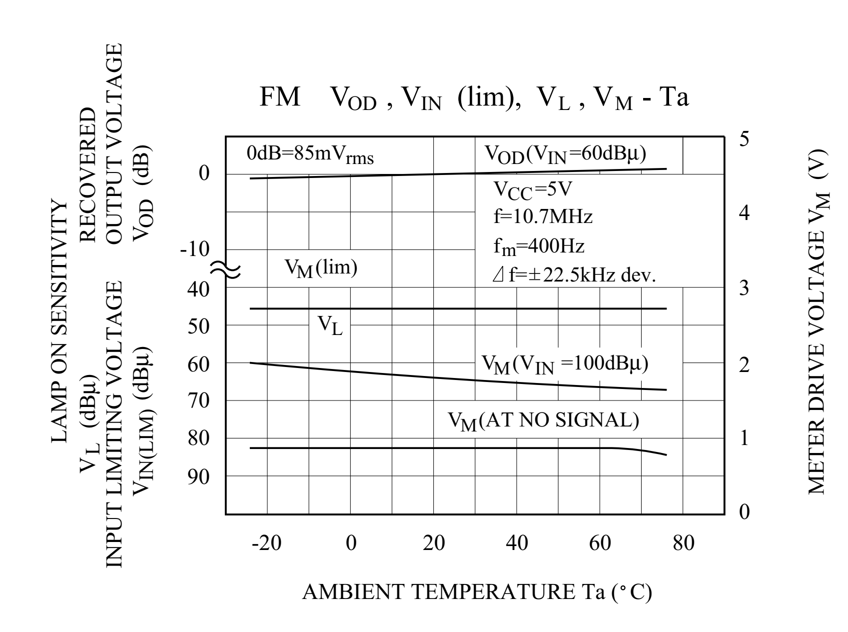
KIA6040P

1 2 3 4 5 6 7 8
3.3uF
68kΩ
33kΩ
AM
FM
0.047uF
10uF
22uF
680Ω
0.47uF
220kΩ
0.022uF
100kΩ
100kΩ
0.047uF
KTC3198-GR
AFC

FM V_{OD}, AMR, S/N, THD, V_M - V_{IN}



FM V_{OD}, V_{IN} (lim), V_L, V_M - Ta



AM V_{OD}, S/N, THD, V_M - V_{IN}

